

Title (en)

Method for producing a compound of interest in a filamentous fungal cell

Title (de)

Verfahren zur Herstellung einer Verbindung in einer filamentösen Pilzzelle

Title (fr)

Procédé de production d'un composé d'intérêt dans une cellule fongique filamenteuse

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Application

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Abstract (en)

The invention relates to a nucleotide sequence comprising: - a synonymous nucleotide coding sequence with optimized codon frequency such that a native codon has been exchanged with a synonymous codon, said synonymous codon encoding the same amino acid as the native codon and having a higher frequency in codon usage as defined in Table 1 than the native codon; and optionally said nucleotide sequence comprises control sequences such as: - one translational termination sequence orientated in 5' towards 3' direction selected from the following list of sequences: TAAg, TAGA and TAAA, preferably TAAA, and/or - one translational initiator coding sequence orientated in 5' towards 3' direction selected from the following list of sequences: gctnccyycc, using ambiguity codes for nucleotides: v (A/C/G); n (A/C/G/T), preferably 5'-GCT TCC TTC-3'. The invention further relates to a consensus translational initiator sequence: 5'-mwChkyCAmv-3', preferably the translational initiator sequence is selected from the list consisting of: 5'-mwChkyCAAA-3', 5'-mwChkyCACAA-3', and 5'-mwChkyCAAG-3'.

IPC 8 full level

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Citation (applicant)

- WO 9711086 A1 19970327 - GEN HOSPITAL CORP [US]
- WO 03070957 A2 20030828 - NOVOZYMES AS [DK], et al
- WO 03085114 A1 20031016 - US ARMY [US], et al
- WO 03085114 A1 20031016 - US ARMY [US], et al
- US 6461837 B1 20021008 - YAVER DEBBIE S [US], et al
- WO 9932617 A2 19990701 - DSM NV [NL], et al
- EP 0238023 A2 19870923 - NOVO INDUSTRI AS [DK]
- WO 0121779 A2 20010329 - DSM NV [NL], et al
- EP 0357127 B1 19990609 - DSM NV [NL]
- WO 9846772 A2 19981022 - GIST BROCADES BV [NL], et al
- EP 0635574 B1 20030423 - DSM NV [NL]
- WO 9706261 A2 19970220 - GIST BROCADES BV [NL], et al
- WO 9735956 A1 19971002 - NOVO NORDISK AS [DK], et al
- EP 0429490 A1 19910605 - GENENCOR INC [US]
- WO 9614404 A1 19960517 - NOVO NORDISK AS [DK], et al
- WO 0168864 A1 20010920 - NOVOZYMES AS [DK]
- WO 0039322 A1 20000706 - NOVO NORDISK AS [DK]
- WO 9812300 A1 19980326 - NOVO NORDISK AS [DK], et al
- US 5766912 A 19980616 - BOEL ESPER [DK], et al
- US 2004186070 A1 20040923 - PENTTILA MERJA E [FI], et al
- US 2001034045 A1 20011025 - PENTTILA MERJA E [FI], et al
- WO 0172783 A2 20011004 - GENENCOR INT [US], et al
- WO 2005123763 A1 20051229 - DSM IP ASSETS BV [NL], et al
- US 2004191864 A1 20040930 - CONNELLY MARIAH [US], et al
- WO 2004070022 A2 20040819 - DSM IP ASSETS BV [NL], et al
- WO 2005095624 A2 20051013 - DSM IP ASSETS BV [NL], et al
- WO 9600787 A1 19960111 - NOVO NORDISK BIOTECH INC [US]
- WO 0155342 A2 20010802 - BIOCATALYTICS INC [US]
- EP 0635574 B1 20030423 - DSM NV [NL]
- EP 1590444 A2 20051102 - DSM IP ASSETS BV [NL]
- JP H10155493 A 19980616 - SANKYO CO
- WO 2004070022 A2 20040819 - DSM IP ASSETS BV [NL], et al
- KANAYA, S, Y. YAMADA, Y. KUDO, T. IKEMURA: "Studies of codon usage and tRNA genes at 18 unicellular organisms and quantification of Bacillus subtilis tRNAs: gene expression level and species-specific diversity of codon usage based on multivariate analysis", GENE, vol. 238, 1999, pages 143 - 155, XP002188453, DOI: doi:10.1016/S0378-1119(99)00225-5
- YOUNG, DONG, NUCLEIC ACIDS RESEARCH, vol. 32, no. 7, 2004, Retrieved from the Internet <URL:http://nar.oupjournals.org/cgi/reprint/32/7/e59>
- GUPTA ET AL., PROC. NATL. ACAD. SCI USA, vol. 60, 1968, pages 1338 - 1344
- SCARPULLA ET AL., ANAL. BIOCHEM., vol. 121, 1982, pages 356 - 365
- STEMMER ET AL., GENE, vol. 164, 1995, pages 49 - 53
- KOZAK, M., NUCAL ACID RES., vol. 15, no. 20, 1987, pages 8125 - 47
- ALEKSENKO, CLUTTERBUCK, FUNGAL GENET. BIOL., vol. 21, 1997, pages 373 - 397
- YELTON ET AL., PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA, vol. 81, 1984, pages 1470 - 1474
- MALARDIER ET AL., GENE, vol. 78, 1989, pages 147156

- R. B. HERBERT: "The Biosynthesis of Secondary Metabolites", 1981, CHAPMAN AND HALL
- PUNT PJ, VAN GEMEREN LA, DRINT-KUIJVENHOVEN J, HESSING JG, VAN MUIJLWIJK-HARTEVELD GM, BEIJERSBERGEN A, VERRIPS CT, VAN DEN HONDEL: "Analysis of the role of the gene bipA, encoding the major endoplasmic reticulum chaperone protein in the secretion of homologous and heterologous proteins in black Aspergilli", APPL. MICROBIOL. BIOTECHNOL., vol. 50, no. 4, October 1998 (1998-10-01), pages 447 - 54, XP002436676, DOI: doi:10.1007/s002530051319
- "More Gene Manipulations in Fungi", 1991, ACADEMIC PRESS
- "Protein Purification", 1989, VCH PUBLISHERS
- FREIER ET AL., PROC NATL ACAD SCI USA, vol. 83, 1986, pages 9373 - 9377
- CURR GENET., vol. 17, no. 3, March 1990 (1990-03-01), pages 203 - 212
- GENE., vol. 77, no. 1, 15 April 1989 (1989-04-15), pages 51 - 9

Citation (search report)

- [XD] WO 03085114 A1 20031016 - US ARMY [US], et al
- [X] EP 1231272 A2 20020814 - OVEJERO S A LAB [ES]
- [XD] WO 03070957 A2 20030828 - NOVOZYMES AS [DK], et al
- [A] US 2004161840 A1 20040819 - CONTRERAS ROLAND HENRI [BE], et al
- [E] WO 2006092396 A1 20060908 - DSM IP ASSETS BV [NL], et al

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